

## P5513

## Impact of fractional flow reserve on surgical coronary revascularization strategy

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**Background:** Fractional flow reserve (FFR) during angiography is associated with hemodynamic reclassification of coronary disease severity with significant impact on revascularization strategies. However, no prospective data exist on the impact of FFR on surgical coronary revascularization strategies.

**Methods:** GRAFFITI is a single-blinded, open-label, prospective 1:1 randomized controlled multi-center pilot trial comparing FFR-guided versus angiography-guided coronary artery bypass graft surgery. Patients with a significantly diseased left anterior descending or left main stem and at least one more major coronary artery with angiographically intermediate stenosis were randomized to angiography-guided or to FFR-guided group. FFR was measured in the intermediate stenoses in both groups, but disclosed to the surgeons only if patients were allotted to the FFR-guided strategy. Patients in the angiography-guided group were operated following the initial angiogram-based strategy. Patients in the FFR-guided group were operated according to the hemodynamic stenosis significance by FFR. In this latter group, surgeons had to detail the intended procedure before and after disclosing the FFR values.

**Results:** After randomization, 88 patients were included into the FFR-guided group. Among them disclosure of FFR has changed bypass strategy in 55%. Disclosing FFR was associated with a significant reduction in on-pump surgery (81% vs. 69% after FFR disclosure,  $p=0.006$ ) and in total number of bypass grafts per patient (3 [2; 3] vs. 2 [2; 3] after FFR disclosure,  $p=0.018$ ). Among the 64 vessels for which no revascularization was indicated based on the initial angiogram, 16 (25%) were finally bypassed due to significant FFR. Among 108 lesions for which SVG implantation was indicated based on the initial angiogram, 25 (23%) were not bypassed after disclosing a preserved FFR value; while among 128 lesions for which arterial graft was indicated, 15 (12%) were eventually not bypassed. At 1-year follow-up, outcomes were similar between patients with at least 1 change in strategy according to FFR and patient without any change in therapeutic decision.

**Conclusion:** Change of procedural strategies after FFR assessment occurs in more than half of the cases, significantly simplifying the surgical protocol and without untoward impact on 1-year clinical outcome.

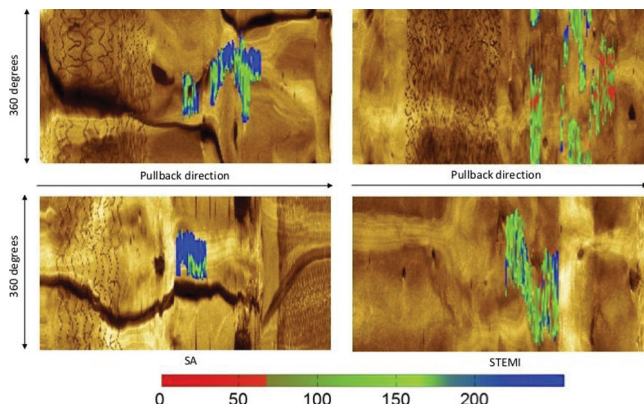
## P5514

## Three-dimensional fibrous cap thickness pattern in patients with ST-elevation myocardial infarction vs. stable angina

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**Background:** Currently fibrous cap thickness (FCT) is measured at an arbitrary point determined by visual assessment on 2-dimensional cross sectional image. This method is known to have poor reproducibility.

**Purpose:** The aim of the current study was to compare the area and pattern of thin cap fibroatheroma (TCFA) area using 3-dimensional programming between patients with ST-elevation myocardial infarction (STEMI) and with stable angina (SA).



**Figure 1.** Optical coherence tomography example of fibrous cap thickness (FCT) of stable angina (SA) and ST elevation myocardial infarction patient. Red colour represents FCT lower than 80  $\mu\text{m}$ , green from 80 – 200  $\mu\text{m}$ , and blue more than 200  $\mu\text{m}$ .

Example of fibrous cap thickness mapping

**Methods:** We have compared non-culprit plaques in 27 SA and 27 STEMI patients. TCFA was defined as a lipid-rich plaque with FCT <80  $\mu\text{m}$ . Whole TCFA surface area in each plaque, number of spots with TCFA and a total area of TCFA were measured.

**Results:** Patient characteristics between the two groups were comparable, although patients with STEMI were less frequently on statins (61% vs. 26%;  $p<0.017$ ) and beta-blockers (48% vs. 4%;  $p=0.001$ ). Patients with STEMI had greater total area of cap thickness  $\leq 80 \mu\text{m}$  (0.24 [0.08 - 0.48] vs. 1.04 [0.41 - 1.95]  $\text{mm}^2$ ;  $p<0.004$ ). On the contrary, patients with SA had greater total cap area of cap thickness >200  $\mu\text{m}$  (5.97 [2.28–10.35] vs. 3.77 [1.23–6.48]  $\text{mm}^2$ ;  $p=0.022$ ). Largest TCFA spot area was observed in patients with STEMI (0.08 [0.04–0.16] vs. 0.40 [0.14–0.69]  $\text{mm}^2$ ;  $p<0.001$ ). Likewise, STEMI patients had greater overall number of TCFA spots (2 [0–5] vs. 9 [1–17];  $p=0.002$ ), as well as greatest mean area of TCFA spot (0.05 [0.02–0.06] vs. 0.08 [0.06–0.16]  $\text{mm}^2$ ;  $p<0.001$ ).

**Conclusions:** This study demonstrates that patients with STEMI, as compared to those with SA, have more vulnerability in non-culprit plaques.

## P5515

## Novolimus-eluting bioresorbable scaffold in acute coronary syndrome: an optical coherence tomography study of acute mechanical performance

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**Background:** The bioresorbable scaffold (BRS) is a novel approach for the treatment of coronary artery disease. In particular, acute coronary (ACS) is an appealing scenario for BRS: younger patients, less prior events, softer plaques. However, ACS overall is an exclusion criteria for most randomized trials and available data points out a trend for a higher risk for scaffold thrombosis.

**Objectives:** To evaluate the acute performance of novolimus-eluting DESolve BRS using optical coherence tomography (OCT) in terms of appropriate scaffold deployment depending of clinical patient presentation.

**Design:** Consecutive patients undergoing PCI with OCT-guided scaffold implantation from January 2014 to August 2015 were reviewed. Patients were grouped by clinical presentation (Non-ACS vs. ACS). Using the very final pullback, the following indexes were calculated: mean and minimal area, residual area stenosis (RAS), incomplete strut apposition (ISA), tissue prolapse, eccentricity index, symmetry index, strut fracture and edge dissection. Longitudinal cross-sections were analysed at 1-mm intervals within the stented lesion.

**Results:** A total of 79 patients were included. While 34 patients presented with ACS, 45 were treated within stable angina (SCAD, Non-ACS group). Patients with SCAD were significantly older (Non-ACS 64.9 $\pm$ 8.5 vs. ACS 57.4 $\pm$ 7.5,  $p<0.001$ ). Patients shared similar incidence of diabetes mellitus, left ventricular ejection fraction and number of diseased vessels. Lesions were typically located in the RCA in Non-ACS and LAD in ACS group. They did not differ significantly with respect to AHA/ACC lesion classification ( $p=0.70$ ). QCA analysis also showed similar result in both groups (RVD, MLD, lesion length).

Average BRS diameter (3.1 $\pm$ 0.4 vs. 3.1 $\pm$ 0.4mm,  $p=0.89$ ) and length (19.7 $\pm$ 5.9 vs. 19.8 $\pm$ 5.6mm,  $p=0.73$ ) were similar in both groups. Pre-dilatation was performed in most cases (93.3 vs. 97.1%,  $p=0.46$ ).

OCT analysis did not show a difference in mean scaffold area (8.1 $\pm$ 2.3 vs. 7.2 $\pm$ 1.9mm<sup>2</sup>,  $p=0.06$ ) and lumen area (7.8 $\pm$ 2.3 vs. 7.1 $\pm$ 1.8mm<sup>2</sup>,  $p=0.28$ ). Assessment of geometrical parameters revealed a mean eccentricity index of 0.78 $\pm$ 0.13 vs. 0.78 $\pm$ 0.06,  $p=0.42$  and a symmetry index of 0.42 $\pm$ 0.10 vs. 0.42 $\pm$ 0.09,  $p=0.97$ . Mean residual area stenosis was 14.5 and 19.5% respectively ( $p=0.39$ ). Residual area stenosis >20% was slightly more often seen in ACS group, however, not significantly (42.2 vs. 52.9%,  $p=0.34$ ). OCT showed only few dissections that occurred in both groups akin (6.6 vs. 5.9%,  $p=0.50$ ). Fractures, though, were predominantly seen in the Non-ACS group (22.2 vs. 5.9%,  $p=0.07$ ). The percentage of malapposed struts was 2.7 vs. 1.9%,  $p=0.15$ .

**Conclusion:** OCT showed a good acute mechanical performance of the novolimus-eluting BRS. The post-implantation behavior as assessed by evaluation of the very final pullback was similar irrespective of the clinical presentation of the patient.

## CORONARY INTERVENTIONS: VASCULAR ACCESS

## P5516

## Efficacy and safety of transulnar coronary angiography and interventions in thammassat university hospital

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**Background:** Currently transradial access for coronary intervention demonstrates improvement in clinical outcome and decreasing vascular complication rate in coronary intervention. However some patient might have limitation for radial access. Hence trans ulnar access was used as another alternative access in our institutes.